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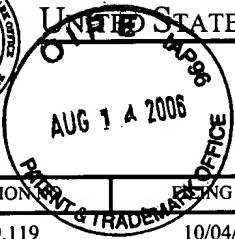
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/679,119	10/04/2000	Roger P. Hoffman	P/2-75 CIP	7289

7590 08/04/2006  
PHILIP M. WEISS, ESQ.  
WEISS & WEISS  
310 OLD COUNTRY ROAD, SUITE 201  
Garden City, NY 11530

EXAMINER	
OUELLETTE, JONATHAN P	
ART UNIT	PAPER NUMBER
3629	

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/679,119

Applicant(s)

HOFFMAN, ROGER P.

Examiner

Jonathan Ouellette

Art Unit

3629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-14,16-46,48-58 and 60-71 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-14,16-46,48-58 and 60-71 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date 20060201.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. Claims 2, 15, 47, 52-57, 59, and 72-79 have been cancelled; therefore, **Claims 1, 3-14, 16-46, 48-51, 58, and 60-71** are currently pending in application 09/679,119.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 3-14, 16-46, 48-51, 58, and 60-71** are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffman (Hoffman, Roger, "Small tonnage increases examined by medium mill for cost-effectiveness." Pulp & Paper, September 1980).
4. As per independent Claims 1, 17, 21, 30, 33, 49, 60, 61, the Inventor (Roger Hoffman), disclosed the business method to include: controlling the operating speed of a continuous process manufacturing facility (Incremental efficiency concept deals with the efficiency associated with incremental changes in machine speed) comprising the steps of:  
determining a current operating speed of said continuous process manufacturing facility (current efficiency – machine speed is a factor of efficiency); determining a desired operating speed (optimal efficiency), the desired operating speed dependent on at least one economic variable that varies depending on the operating speed (Energy Costs – see

Art Unit: 3629

Fig.3); comparing said current operating speed to said desired operating speed (Fig.3, comparing efficiencies); adjusting said current operating speed in response to said determination (Operator would choose efficiency which produces best production with lowest cost – see Fig.3).

5. As per the remaining dependent claims 3-14, 16, 18-20, 22-29, 31, 32, 34-46, 48, 50, 51, 58, and 62-71, the Inventor (Roger Hoffman), also discloses these general functional concepts (ex. Determining/associating cost of energy / cost of manufacturing with production – by manipulating machine speed/efficiency).

#### ***Response to Arguments***

6. Applicant's arguments filed 6/27/2005, with respect to Claims 1, 3-14, 16-46, 48-58, and 60-71, have been considered but are moot in view of the new ground(s) of rejection. The rejection will remain as NON-FINAL.

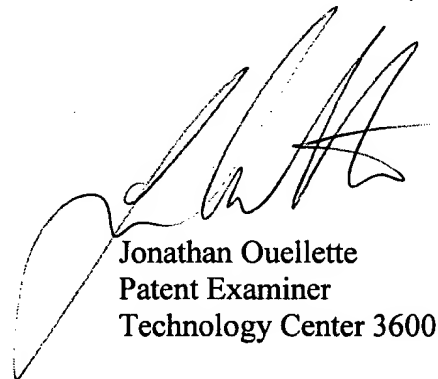
#### ***Conclusion***

7. Additional Literature has been referenced on the attached PTO-892 form, and the Examiner suggests the applicant review these documents before submitting any amendments.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Ouellette whose telephone number is (571) 272-6807. The examiner can normally be reached on Monday through Thursday, 8am - 5:00pm.

Art Unit: 3629

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Weiss can be reached on (571) 272-6812. The fax phone numbers for the organization where this application or proceeding is assigned (571) 273-8300 for all official communications.
10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Office of Initial Patent Examination whose telephone number is (703) 308-1202.

jo  
July 31, 2006



Jonathan Ouellette  
Patent Examiner  
Technology Center 3600

<b>Interview Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/679,119	HOFFMAN, ROGER P.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jonathan Ouellette	3629	

All participants (applicant, applicant's representative, PTO personnel):

(1) Jonathan Ouellette. (3)\_\_\_\_\_.

(2) Philip Weiss. (4)\_\_\_\_\_.

Date of Interview: 01 February 2006.

Type: a) ☒ Telephonic b) ☐ Video Conference  
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.  
If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: Independent Claims.

Identification of prior art discussed: Hogge.

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

  
Examiner's signature, if required

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Examiner Ouellette and Mr. Weiss discussed the prior art (Hogge) and compared it to the claimed invention. Examiner Ouellette explained the similarities between the claimed invention and the production planning system disclosed by Hogge. Mr. Weiss Suggested amending the independent claims to read and apply to "continuous processing manufacturing facilities," as the economics are quite different from that of product manufacturing facilities, as disclosed by the prior art. Examiner Ouellette agreed that such an amendment would move the case forward and possible read over the prior art, but that the amendment would require additional search and consideration before a determination of allowability could be made.



**Notice of References Cited**

Application/Control No.

09/679,119

Applicant(s)/Patent Under  
Reexamination  
HOFFMAN, ROGER P.

Examiner

Jonathan Ouellette

Art Unit

3629

Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Hoffman, Roger, "Small tonnage increases examined by medium mill for cost-effectiveness." Pulp & Paper, September 1980.
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

## ENERGY

# Small tonnage increases examined by medium mill for cost-effectiveness

During soft market conditions, Green Bay Packaging finds high energy requirements may dictate a decrease in production to sustain profitability

By ROGER HOFFMAN

□ Most papermakers subscribe to the assumption that the faster a paper machine can be run, producing a quality product, the lower the cost will be. The average production person would probably have a difficult time accepting the fact that sometimes a reduced production rate can actually increase profitability.

However, this can happen when production rates exceed a paper machine's optimum level of energy efficiency. All paper machines have this "limiting" level beyond which energy consumption increases disproportionately to the value of incremental tonnage gains.

Particularly in times of decreased product demand when maximum output is not a primary consideration, a mill can operate very profitably by balancing production against this optimum, that is, minimizing energy consumed per ton of product produced.

## 'Energy hogs' and profits

Figure 1 illustrates the relationship between production rate and profitability. The rapid decline in net income as production increases beyond the optimum rate can be attributed mainly to "energy hogs" located at various points on the paper machine. Examples of these are steam showers, certain portions of the ventilation system, and additional vacuum pumps—all of which are often not original equipment but are added to increase production. The energy-intensive nature of this "add-on" equipment becomes increasingly apparent as production rates rise.

*Mr. Hoffman is vice president and mill manager at the Green Bay Packaging Inc. mill, Green Bay, Wis. This article is based on a paper presented at the Wisconsin Paper Council's energy conservation workshop, Dec. 14, 1978.*

A case in point is the Green Bay Packaging mill at Green Bay, Wis. This integrated mill produces 300 tpd of corrugating medium on one paper machine. The machine has two steam showers. When in place and operational they can add approximately 15 tpd to the instantaneous production rate. The two showers require 16,000 lb/hour of steam to operate (Figure 2). The steam required per ton can be calculated by dividing the additional steam required for the showers by the incremental tonnage increase. This amounts to 25,600 lb/ton of product, which is nearly three times the average for the entire mill. Thus the increased tonnage is very expensive to produce.

A similar situation can occur with ventilation systems. Although care must be exercised not to cause dewpoint problems within the dryer hood, sometimes the energy used by the ventilation systems can be made to give a better return.

Another area of energy usage that should be examined is the wet end vacuum system. Although most mill superintendents may feel that more vacuum is always needed someplace on the wet end, diminishing returns occur as 30 in. of vacuum is approached. The additional energy required for increasing vacuum beyond this level may not be worth its cost. Extra vacuum pumps should not be run if they give little or no measurable effect at the reel. If they do provide a benefit, the cost of this benefit should be carefully calculated.

## Incremental efficiency concept

The energy required to produce a given tonnage from a given machine is inversely related to machine efficiency. Figure 3 shows that the slower a machine can be run for a given production rate, the lower the energy costs will be. Carrying this relationship one step further leads to the concept of "incremental efficiency." Incremental efficiency is the efficiency associated with an incremental change in machine speed; it can best be illustrated by an example.

If changing a paper machine system (for example, use of steam showers and more vacuum) results in an increase in machine speed of 5%, and that speed change lowers machine efficiency from 95% to 93%, the incremental efficiency can be visualized as the combined efficiency of separate machines. In this visualization

paper machine is running at 95% efficiency and at a given speed. If a second machine running at 5% of the speed of the first is added, and if the overall efficiency of the two-machine system is 93%, effective efficiency of the second machine (that is, the incremental efficiency) would be only 53%. This is calculated in Figure 4.

The energy that was used to attain this increased machine speed can be determined by first examining steam shower requirements. Utilizing the steam shower resulted in a 5% increase in machine speed. However, the efficiency dropped from 95% to 93%. The additional steam required to produce the incremental tonnage increase is somewhere between 25,600 lb/ton (as calculated earlier) and 48,300 lb/ton (25,600 lb/ton + 0.53 = 48,300 lb/ton).

This broad range of additional steam required takes into account the fact that the steam showers operate during some of the nonproductive periods, that is, when there is a break. If the showers were to operate during all of the nonproductive periods, the larger figure (48,300 lb/ton) would be accurate.

To fully examine the cost of operating the showers, two other points need to be considered. First, steam

cost for the showers is actually higher than the average cost of producing steam because there is no condensate return as is the case in steam for the dryers. Thus, no heat is recovered. Also, the increase in speed and the use of the showers results in added ventilation requirements as high as 20% to 25%.

The showers require between 25,600 lb/ton and 48,300 lb/ton of additional steam at \$2.50/1000 lb, which represents between \$64.00/ton and \$120.75/ton. If 20% additional steam is required for ventilation, this will cost between \$12.80/ton and \$24.15/ton. No condensate return increases energy required by 10%, which costs between \$6.40/ton and \$12.08/ton. Thus the total cost of the incremental tonnage is somewhere between \$83.20/ton and \$156.98/ton just for steam.

This approach to determining accurate production values has been highly useful in enabling the Green Bay mill to remain profitable during times when demand is down. In May of 1975, by utilizing these techniques the Green Bay mill was able to reduce energy consumption by 25%. Although tonnage decreased somewhat, no layoffs were necessary and this period was one of the most profitable in company history. □

Figure 1. Profitability vs production rate

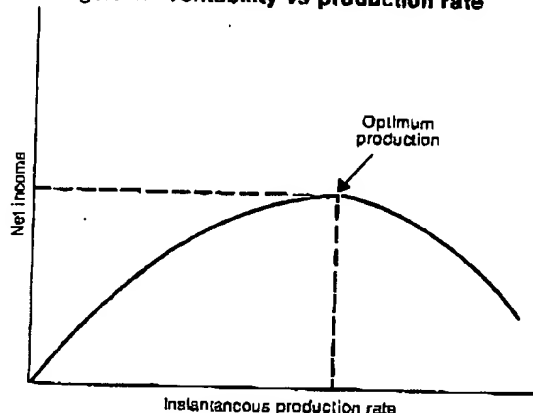


Figure 3. Energy vs average production at different efficiencies

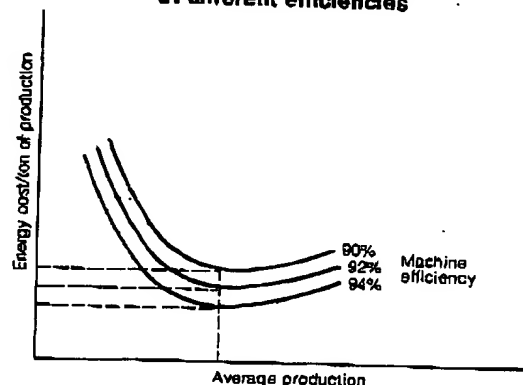


Figure 2. Steam showers at Green Bay Packaging

	Steam consumption	Increase in instantaneous production
Wire shower	10,000 lb/hr	10 tpd
First press shower	6,000 lb/hr	5 tpd
<b>Total</b>	<b>16,000 lb/hr</b>	<b>15 tpd</b>

$$\frac{\text{Additional steam}}{\text{Additional production}} = \frac{16,000 \times 24}{15} = 25,600 \text{ lb/ton of steam}$$

These calculations do not consider:

1. The fact that the full 15 tpd of added tonnage may not actually be made.
2. The steam cost is higher because there is no condensate return when using a steam shower.
3. Added ventilation requirements with steam showers in operation can be as high as 20% to 25%.

Figure 4. Calculation of incremental efficiency

- If:
- $S_i$  = Fractional change in machine speed
  - $(EFF)_A$  = Machine efficiency prior to making the change
  - $(EFF)_B$  = Machine efficiency after making the change

$$\text{Incremental efficiency} = \frac{(1 + S_i)(EFF)_B - (EFF)_A}{S_i}$$

- If:
- An increase in machine speed of 5% results in a change in machine efficiency from 95% to 93%

$$\text{Incremental efficiency} = \frac{(1 + 0.05)(93) - 95}{0.05} = 53\%$$